NuForce AVP-16
Preamp and Surround Processor
OWNER'S MANUAL

The NuForce AVP 16 is designed for simplicity and expandability with the focus on providing first-rate audio performance. The 7.1-channel analog preamp inputs (8 total channels) can be used to support the decoded output from future DVD players. By shutting off the video circuit (when CD input is selected) the AVP-16 becomes a true audiophile quality preamp.

Those who listen to the AVP-16 are struck by its wide dynamic range, smooth lifelike midrange presentation, and its natural, grain-free treble. The bass is deep and articulate, providing plenty of kick and drive for both music and movie soundtracks.

We, at NuForce thank you for your purchase and are confident that the AVP-16 will enhance your home theater and music-listening experience. Before using the AVP-16, please take a few moments to read this instruction manual and familiarize yourself with its convenient features, settings, and adjustments.

FCC Notice "Declaration of Conformity Information"

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

WARNING: Only peripherals complying with the FCC class B limits may be attached to this equipment.

Changes or modifications made to this equipment, not expressly approved by us or parties authorized by us could void the user's authority to operate the equipment. This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

SAFETY INSTRUCTIONS

There are two categories of Safety Instructions included in this manual:

- Product Warnings, (i.e., what must never be done to assure avoiding those hazards that could cause bodily injury or property damage); and
- User Directions (i.e., what must always be done to assure the safe use of your device).

The Safety Instructions contained in this manual have been categorized in accordance with the seriousness of the potential hazards through the use of Signal Words. Those Signal Words, and their intended meanings, are as follows:

- **DANGER:** Indicates that a failure to observe the Safety Instructions could result in death or catastrophic bodily injury.
- **WARNING:** Indicates that a failure to observe the Safety Instructions could result in serious bodily injury.
- **CAUTION:** Indicates that a failure to observe the Safety Instructions could result in minor bodily injury or property damage.
- **NOTE:** Designates important information that relates to activities and/or conditions that might result in loss of data and/or damage to your device.

WARNING: Use only grounded AC power cords.

Always immediately disconnect the power to the equipment in the event the device emits an unusual odor or sound or generates smoke.

WARNING: Never attempt to disassemble, repair or make any modification to your device. Disassembly, modification or any attempt at repair could cause bodily injury or property damage, as well as damage to the device itself.

WARNING: Your device is not a toy. Never allow children to play with your device. Misuse, rough or improper handling of your device by children could result in serious bodily injury for any of the enumerated safety warnings in this manual. In addition, always keep all accessories and components out of the reach of small children as small parts might present a choking hazard. Seek immediate medical attention if choking occurs or if any small part has been swallowed.

CAUTION: Never raise the sound volume level too high when using your device with earphones. An excessive sound volume level could cause damage to your hearing.

WARNING: To reduce the risk of fire or electric shock, do not expose the unit to moisture or water.

Do not allow foreign objects to get into the enclosure. If the unit is exposed to moisture, or a foreign object gets into the enclosure, immediately disconnect the power cord from the wall. Take the unit to a qualified service person for inspection and necessary repairs.

Read all the instructions before connecting or operating the component.
Keep this manual so you can refer to these safety instructions.
Heed all warnings and safety information in these instructions and on the product itself. Follow all operating instructions.
Do not use this unit near water.
You must allow a minimum 10 cm or 4 inches of unobstructed clearance around the unit. Do not place the unit on a bed, sofa, rug, or similar surface that could block the ventilation openings. If the unit is placed in a bookcase or cabinet, there must be ventilation of the cabinet to allow proper cooling. Keep the component away from radiators, heat registers, stoves, or any other appliance that produces heat.

The unit must be connected to a power supply only of the type and voltage specified on the rear panel. (USA: 115 V/60Hz, EC: 230V/50Hz)

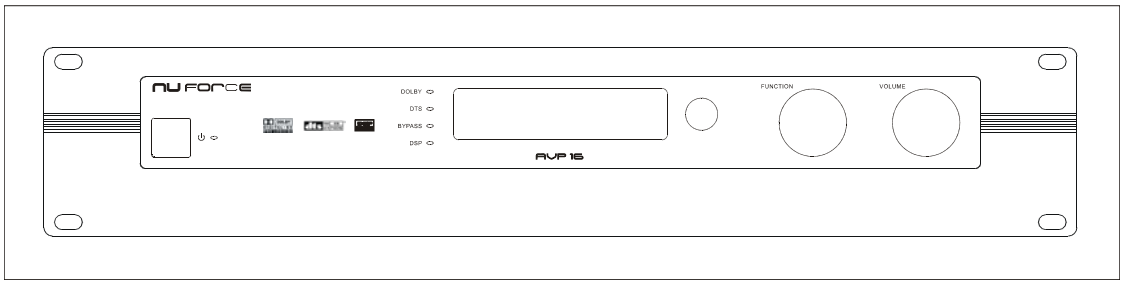
Connect the component to the power outlet only with the supplied power supply cable or an exact equivalent. Do not modify the supplied cable.

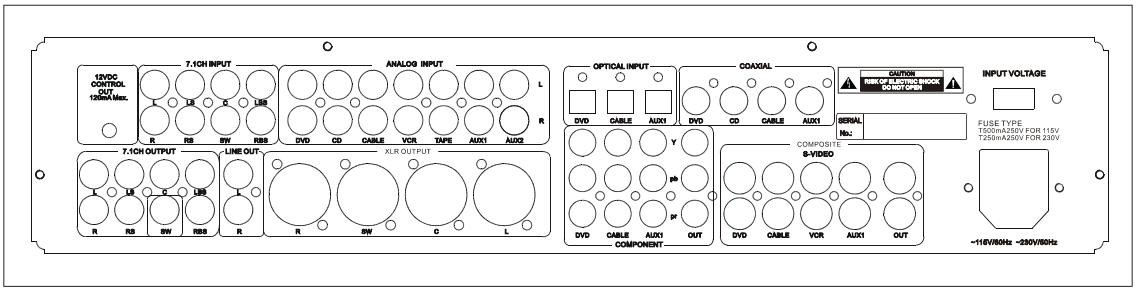
Do not route the power cord where it will be crushed, pinched, bent, exposed to heat, or damaged in any way. Pay particular attention to the power cord at the plug and where the cord exits the back of the unit.

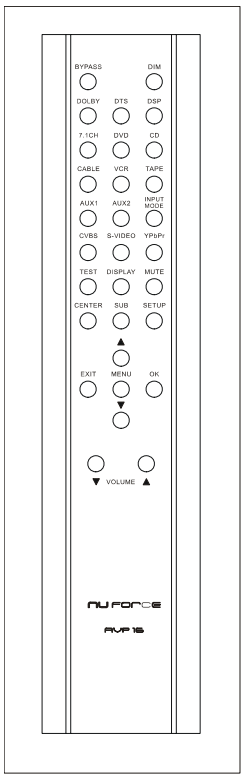
The power cord should be unplugged from the wall outlet during a lightning storm or if the unit is to be left unused for a long period of time.

Immediately stop using the component and have it inspected and/or serviced by a qualified service agency if:

- The power supply cord or plug has been damaged.
- Objects have fallen or liquid has been spilled into the unit.
- The unit has been exposed to rain.
- The unit shows signs of improper operation
- The unit has been dropped or damaged in any way


DOLBY
DTS
BYPASS
DSP
FUNCTION
VOLUME
AVP 16


12VDC CONTROL OUT 120mA Max.
7.1CH INPUT
ANALOG INPUT
OPTICAL INPUT
COAXIAL
CAUTION
RISK OF ELECTRIC SHOCK DO NOT OPEN
INPUT VOLTAGE
SERIAL No.:
FUSE TYPE
T500mA250V FOR 115V
T250mA250V FOR 230V
7.1CH OUTPUT
LINE OUT
XLR OUTPUT
COMPOSITE
S-VIDEO
COMPONENT
~115V/60Hz ~230V/50Hz


BYPASS
DIM
DOLBY
DTS
DSP
7.1CH
DVD
CD
CABLE
VCR
TAPE
AUX1
AUX2
INPUT MODE
CVBS
S-VIDEO
YPbPr
TEST
DISPLAY
MUTE
CENTER
SUB
SETUP
EXIT
MENU
OK
VOLUME
AVP 16

Quick Setup Guide

To start enjoying your AVP-16 here are some initial steps to follow:

Connections
Note: Make sure that the AVP-16 and all associated components are turned off while plugging and unplugging connections!

1) Connect the digital optical or coaxial output of your DVD player to the optical or coaxial DVD input on the rear panel of the AVP-16.
2) Connect the Composite, Component, or S-Video output from the DVD player to the same type of input on the rear panel of the AVP-16.
3) Connect the corresponding Composite, Component, or S-Video output from the AVP-16 to the same type of input on your TV monitor.
4) Connect the Composite, Component, or S-Video output from your digital satellite or cable TV box to the same type of CABLE video input on the rear panel of the AVP-16.
5) If the CABLE/Satellite video output (composite, component, or S-video) is a different type than that used for the DVD player, then connect this second type of video output to a different number video input on the TV monitor.
6) Connect the Left and Right analog audio outputs from your satellite or cable TV box to the Left and Right Analog Inputs on the rear panel of the AVP-16.
7) Multi-channel analog outputs from a SACD or DVD-A player may be connected to the corresponding 7.1CH INPUT(s) on the rear panel of the AVP-16.
8) Connect the 7.1CH OUTPUT(s) to the corresponding input channels of your external amplifier(s). The XLR Balanced OUTPUT(s) for the Left and Right Main, Center, and Subwoofer channels may be used INSTEAD of their respective RCA 7.1 CH Outputs, when XLR Balanced amplifier inputs are available. A pair of Left and Right stereo Line Level Outputs is provided for recording or to link to a 2-channel stereo system. Make certain that all amplifiers are switched OFF while making or breaking connections!
9) After all signal connections have been made and double checked, plug the provided AC power cord into the IEC receptacle on the rear panel of the AVP-16, then plug the male end into an AC power line conditioner or into an AC wall power outlet.

Getting Started
Now that the AVP-16 is connected simply push the front power switch in to begin your journey to an exhilarating audio/video experience. The display will say “NUFORCE”, then “AVP 16”, and will then display the default or last used input and volume setting.

Using the Remote Control is the quickest way to get acquainted with the navigation of the MENU and the AVP-16’s many features and settings.

1) To start, **Press the Volume down key** to lower the initial volume. **Point the remote** at the AVP-16 and **press one of the 8 input keys** (an input that is hooked up as above, with the source component powered on).

2) **Immediately press the "INPUT MODE" key** to select the appropriate audio connection. **Continue pressing** the Input Mode key **to scroll** through the input options for the selected input, which may include Analog ("ANA"), Optical ("OPT"), or Coaxial ("COA").
3) **Choose a processing mode** by pressing the "DOLBY", "DTS", or "DSP" keys. Continuing to press the selected processing key will scroll through all the processing options for the selected mode.
4) If using a video source, make sure the TV monitor is turned on and the correct video input is selected.
5) Choose the appropriate **VIDEO OUTPUT** for the selected INPUT. Set the Video connection by pressing the Composite ("CVBS"), "S-VIDEO", or Component ("YPbPr") key.
6) You can quickly adjust the Center channel and Subwoofer levels by pressing the "CENTER" or "SUB" key and then pressing the Volume up or Volume down keys to increase or decrease the relative volume levels of these critical channels. Set the Master Volume to a comfortable listening level **before** making these individual channel level adjustments.

You are now ready to listen to music or to watch a movie using the NuForce AVP-16 as your System Control Center. Please refer to the detailed directions below to fine-tune your audio and multi-channel settings for optimum performance.

1. Front Panel Controls

POWER: Power On/Off switch; it also activates the 12V trigger output for turning on linked components.

FUNCTION: Push in to access the MENU; rotate to scroll between: *Mode Select, Audio Setup, Function, Return, and Input Select*. Another push selects the function. Rotating the Function knob chooses options or adjusts values for the selected functions.

VOLUME: Volume control adjusts from 0dB to 80dB, in 0.5dB increments. Defaults to last used setting at turn-on, or to a maximum of "60" if volume was last set to 60 or higher.

2. Remote Control

1) DIM: Turns the VFD display off or back on.
2) BYPASS: Provides a more direct signal path by bypassing non-essential functions to preserve the highest quality audio performance.
3) DOLBY: Selects between 3CH、PROLOGIC IIx、DOLBY DIGITAL, or DOLBY EX.
4) DTS: Selects between NEO:6, DTS, or DTS ES.
5) DSP: Selects and chooses between 8 DSP modes: Church, Hall, Theater, Rock, Pops, Classic, Stadium, and Live.
6) INPUTS: 7.1CH, DVD, CD, Cable, VCR, Tape, Aux1, Aux2: Select the corresponding input.
7) INPUT MODE: Selects the Audio Input mode. When input is DVD, CABLE, AUX1, or AUX2, "Input Mode' cycles through Analog, Coaxial, and Optical. If the input is CD, either Coaxial or Analog is selected.

8) VIDEO OUTPUT SELECT: When input selection is DVD, EXT7.1CH、CABLE or AUX1, the output selection goes between CVBS (composite video), S-Video (Y/C, or Super-VHS), and YPbPr (component video up to 1080i). If the input selection is VCR, only CVBS or S-Video is available.
9) DISPLAY: Shows the input/volume status, processing mode, and bit-stream information.
10) MUTE: Mutes and reactivates the sound.
11) MENU OPERATION KEYS: Press MENU to get into the main menu, and press Menu again to exit. The ▲/▼ buttons move cursor up/down. OK/EXIT: Press Ok to confirm selected function. Press Exit to return to your prior selection.
12) VOLUME: ▲/▼ Volume control raises and lowers audio level in 0.5dB steps.
13) CENTER: adjusts the center channel using VOLUME ▲/▼
14) SUB: adjusts the subwoofer channel using VOLUME ▲/▼
15) SETUP: Use in conjunction with On Screen Display (connect CVBS or S-video to a TV/Projector). The video display will show adjustable parameters, use ▲/▼to select, and hit "OK" to set, then hit ▲/▼ to change values. Press 'EXIT' to save and exit the current setting.

3. On and Off

- When first tuning on the AVP-16, the unit goes through an initialization routine, and will display NuForce, AVP 16, then reverts to the previously selected input and volume setting. Note: if the volume was set higher than 60 when turned off, on the next power-on cycle the AVP-16 will ramp up to an initial volume level of 60.

4. Input Selection

- **Combinations Supported**

	Audio Input Mode			**Video Output Mode**		
Input	Analog	Coaxial	Optical	CVBS	S-Video	YPbPr
DVD	●	●	●	●	●	●
CD	●	●				
Cable	●	●	●	●	●	●
Aux1	●	●	●	●	●	●
Vcr	●			●	●	
Tape	●					
Aux2	●					
7.1Ch	●			●	●	●

- **With Remote Control:**
  1) **Select:** "7.1CH," "DVD," "CD," "CABLE," "VCR," "TAPE," "AUX1," or "AUX2."

2) Once the input is selected, pressing the **INPUT MODE** key scrolls through the supported audio modes – Analog, Coaxial, or Optical.

- **Front Panel Control:**
- **To Select an Input**
  1) Press **FUNCTION** knob in, and dial until the display shows"INPUT SELECT."
  2) Push **FUNCTION** to enter the "INPUT SELECT" sub-menu. You can rotate the knob in either direction to scroll between all 8 inputs.
  3) Once you have dialed to your chosen input, pressing the **FUNCTION** knob again shows the audio input mode; then, each time the **FUNCTION** knob is pressed it cycles through the available audio input modes (Analog, Coaxial, or Optical) for the selected input.
  4) Push **FUNCTION** in the RETURN position to return to the INPUT SELECT menu. Then rotate the **FUNCTION** knob to scroll through the other sub-menus.
  5) Rotating the Volume knob while in a sub-menu will return you to your last selected input and volume setting.
- **BYPASS – minimal circuitry to preserve audio quality.**
- **DOLBY**

  The AVP-16 supports DOLBY 3CH, PRO LOGIC IIx, DOLBY DIGITAL, and DOLBY EX using the digital coaxial or optical inputs; Dolby 3CH and Pro Logic IIx are also supported using the analog inputs.
- **DTS**

  DTS or DTS-ES on Coaxial, and DTS NEO:6 is supported using coax and analog multi-channel inputs.
- **DSP**

  Analog audio signals from DVD, CD, CABLE, VCR, TAPE, AUX1, AUX2 or digital inputs using PCM can be digitally processed to simulate 8 different acoustic environments. Pressing DSP cycles through: Live, Stadium, Church, Hall, Theater, Rock, Pops, and Classic DSP modes.
- **To Select Processing Mode**
  1) Press **FUNCTION** knob in, then rotate until the display shows"MODE SELECT."
  2) Press **FUNCTION** knob in to scroll through the sub-menu: "BYPASS", "(Dolby) 3CH", "(Dolby) IIx", "(DTS) NEO 6", or "DSP".
  3) Press **FUNCTION** knob in to choose a mode, then rotate the Function knob to see additional options for each mode. Press the Function knob again to confirm selection.

5. Settings

- **Main Volume**

  The Volume knob on the AVP-16 and the Volume control buttons on the remote control adjust the main volume level of all speaker channels simultaneously.

- **On Screen Display:** note that for the On Screen Display to function properly the video input format (Composite, Component, or S-Video) must match the video output format, and the correct input source (DVD, CABLE, VCR, or AUX1) must be selected. Using the On Screen Display on a large screen TV monitor makes the MENU options much easier to view and set.

- **AUDIO SETUP**
- **Tone Controls**

  Push the **FUNCTION** knob in to go to the main MENU, then rotate the function knob to "Audio Setup" and push the Function knob in again to enter the "ADJ Treble" mode. Pushing the Function knob once more will then display "Treble 00" and rotating the Function knob will increase or decrease the Treble +/- 10dB in 2dB steps. Once set, pushing the Function knob returns to the "ADJ Treble" position and rotating the Function knob clockwise will bring you to the "Adj Bass" mode. Pushing the Function knob in will display "Bass 00," and bass may be increased +/- 10dB by rotating the Function knob (clockwise for more bass or counter-clockwise for less bass). Note that all functions are similarly accessed and adjusted by using the Function knob. Since most users will be using the remote control to access the MENU and set parameters, the AVP-16's many features and settings are described using remote control access below.

- **Remote Control:**

  The NuForce AVP-16 Remote control is designed to access and adjust all the functions and settings of which the AVP-16 is capable. In addition to navigating the main and sub-menus, there are many **short-cut buttons** (See Section 2: Remote Control) on the remote that provide more direct access to the most often used features and adjustments. These short-cut buttons allow direct access to audio and video inputs, DSP, Dolby, and DTS processing as well as speaker level adjustments for the center channel and subwoofer. These direct access buttons eliminate the need to scroll through the main and sub-menus. The two included **AAA batteries** may be installed by removing the two small screws in the bottom panel of the

remote and inserting them into the slide-out battery carrier while observing the correct positive and negative polarity markings.

Using the remote control to access the MENU and make adjustments is simple. Pressing the MENU button displays the main MENU, pressing the down or up menu arrows allows scrolling through the sub-menu's (just like rotating the Function knob). Pressing the "OK" button to the right of the MENU button allows you to select different inputs, modes, and functions, just as pressing in the Function knob does. Using the down or up arrows allows you to change the values of the settings. When a setting is finalized press "OK" to save the setting then press the down or up arrows to scroll through other items on the sub-menu. Press the "Exit" button to the left of the MENU button to return to the previous sub-menu. Pressing the VOLUME buttons below the MENU keys will return you to your previously selected INPUT and VOLUME settings at any time.

To adjust the tone controls using the remote, first press the MENU button and then press the down arrow twice to scroll to the "AUDIO SETUP" sub-menu. Pressing "OK" will bring up "ADJ Treble," pressing "OK" again will show "Treble 00." Using the down or up arrows decreases or increases the treble +/-10dB, in 2dB steps. To set, press "OK" to save the setting and then the down arrow to proceed to the "ADJ Bass" mode. Once the tone controls are set, you may continue in the Audio Setup sub-menu to make speaker level adjustments for each of the seven speaker channels plus the subwoofer, or push the Volume buttons to return to your last selected input and volume setting.

7.1 Channel Volume Adjustment

1. Pressing the remote control short-cut buttons for "CENTER," or "SUB," followed by pressing the VOLUME keys will provide instant volume control for these two critical audio channels. After about 10 seconds the display will return to the prior input and volume settings.
2. Using the remote, press MENU and then press the down arrow twice to scroll to the "AUDIO SETUP" sub-menu. Pressing "OK" will bring up "ADJ Treble." Keep pressing the arrow to go to "ADJ Bal-L," which refers to the volume of the left main speaker. Pressing "OK" shows "Bal-L 00." Using the down or up arrows decreases or increases the left main speaker volume +/-10dB, in 2dB steps. Once set, press "OK" to save the setting and then the down arrow to

proceed to the "ADJ Bal-R" mode. This refers to the right main speaker and the volume level is set the same way. After setting the left and right main speaker levels the rest of the speaker channels can be adjusted the same way. This includes "ADJ CENTER," "ADJ SURR L," "ADJ SURR R," ADJ BACK L," "ADJ BACK R," and "ADJ SUBWOOFER."

- **Speaker Setup**

  The AVP-16 allows a number of parameters to be set in order to accommodate different speaker configurations. For example, the audio signal going to each speaker can be optimized based upon the specific speaker's frequency range and size. If you have large, full-range main speakers with **substantial output below 60Hz,** the speaker function should be set to **"LARGE".** This sends more bass energy to speakers capable of handling more extended bass. If the main speakers are small and **lack deep bass,** the speaker function should be set to **"SMALL",** so that the speaker's smaller woofers will not be sent deep bass, which could muddy the sonic presentation. When the main speakers are set to "large," the center and surround speakers cannot be set to large – only to "small."

  Unused Speaker Channels: excepting the main front speakers, any unused speaker channels should be turned off by selecting **"NONE"** for the unused channels. This will serve to reintegrate the unused channel(s) information back into the active speaker channels so that no audio information is lost.

- **Set Speaker Configuration**

  Press the MENU button on the remote, then use the down arrow to scroll to the FUNCTION sub-menu. Press "OK," and press the down arrow to scroll to "FUNC SPEAKER." Press "OK" to select and adjust each speaker channel. Pressing the "OK" button will let you choose the correct setting ("Large," "Small," or "None") for the displayed speaker channel. Once you have toggled to the correct setting, press the down arrow to scroll to the next speaker channel. Repeat this adjustment procedure until you have completed the settings for all eight speaker channels. Remember to select "None" for any unused channels. If you are using a subwoofer, select "Yes;" if not, it is important to select "None", since this will redirect low bass information back to the front main speakers.

- **Adjust Crossover Frequency**

Once you have finished setting the speaker configuration in the “FUNC SPEAKER” sub-menu, pressing the down arrow will bring you to “CROSSOVER.“ Pressing “OK” will display the current crossover setting, such as “CROSSOVER–100”. The available values are 40Hz, 60Hz, 80Hz, 100Hz, and 150Hz. To make a selection, use the down or up arrows to reach your target crossover frequency and then hit “OK,” to set it.

To select an appropriate crossover frequency, find the lower frequency limit of your front main speakers (most speaker manufacturers provide this on a “specs” page) and set the crossover point about 20Hz higher than the low frequency roll-off point. If you are using small, bass-challenged front speakers, then setting the crossover point to 100Hz, or the maximum 150Hz position is recommended.

- **Speaker Distance/Time Delay**

  When using surround speakers, proper time-alignment between the front main speakers and center channel, and also from the front channels to the rear surround and back channels is important for establishing a coherent sound field. Since rooms vary in size just as the distances from the speakers to the listener vary, the AVP-16 facilitates the adjustment of time delay, which corresponds to the distance from the speaker to the listener. The distance between each speaker and the listening position can be adjusted from 1–30ft. When making the speaker distance adjustments refer to the distance from the particular speaker to the center-seated listener.

  To adjust speaker distance, press the MENU key on the remote and scroll to the FUNCTION sub-menu using the down arrow. Press “OK” to enter the menu, then the down arrow to go to “FUNC DISTANCE”. Pressing “OK” shows “DIST LEFT,” and pressing “OK” again shows the current distance setting, in feet, between the left front speaker and the listener. Use the down or up arrows allows to set the correct distance to the left speaker. Pressing “OK” confirms the setting and returns to ”DIST LEFT” on the sub-menu. Then, pressing the down arrow goes to “DIST RIGHT”. Repeat the preceding process for all remaining speaker channels until you have set the correct distance to each speaker.

- **Speaker Level Test Tones**

  The relative volume levels of each speaker should be equal at the center listening position. The AVP-16 incorporates a test-tone generator, which can help fine tune

the audio levels for each speaker channel. It will send a broad-band noise signal to each channel that can be measured with a sound level meter or judged by ear from the center listening position. The test starts in one channel and proceeds to the next channel every two seconds. Begin by turning the main volume down. When using a sound level meter you should raise the volume for an average level around 80dB. Using the **On Screen Display** when playing the **Test Tones** provides a graphic illustration that shows which speaker is being fed the tone. Testing proceeds through the following sequence:

TEST L
TEST C
TEST R
TEST SR
TEST BR
TEST BL
TEST SL
TEST SW

Simply press the "TEST" key on the remote and the sequence of test tones will automatically start and move from channel to channel. By using the down or up arrows you can change each channel's volume level +/- 10dB. Using the sound level meter (or by ear) try to get all the channels as close to the same volume as possible in the center listening position.

The Test Tones can also be accessed through the main MENU by scrolling to the FUNCTION sub-menu and selecting "FUNC TEST".

6. Other Functions

- **Dynamic Range Control**

  Access "FUNC DRC" from the FUNCTION sub-menu. "DRC OFF" provides full, wide-range sound without compression. Selecting "DRC ON" provides moderate dynamic compression for late-night listening or for times when explosive volume swings are not desirable.

- **Blue Screen**

Access “FUNC BLUE” from the FUNCTION sub-menu. Choosing “BLUE AUTO”, the AVP-16 outputs a blue screen in the absence of video signal. “ BLUE OFF” defeats the feature.

- **Factory Defaults**

  Access “FUNC RESET” from the FUNCTION sub-menu to reload the factory default settings.

Specifications:

- Supported formats:
  - Dolby Digital
  - Dolby-EX
  - Dolby Pro-Logic IIX
  - DTS Digital
  - DTS-ES
  - DTS NEO:6
- PCM D/A conversion: 44.1K/16-bit to 192K/24-bit
- S/N: 90 dB (A weighted)
- THD+N:< 0.05%, typical 0.01%
- Video connections: 2 composite video, 2 s-video, 3 component video
- Component video support up to 1080i
- Digital audio input: 2 coaxial/optical, *1 CD coaxial (*video circuit off when CD input is selected)
- Analog audio input: **1 set of 7.1 analog input for SACD/DVD-A, 5 analog input, 1 analog record out. (**7.1 analog input act as 8-ch analog preamp)
- 7.1 RCA Outputs
- 4 XLR Outputs for L, R, C, SW
- Dimension: 3.54" X 17" x 18" (H x W x L), 17.5 lb
- Electrical: AC 120/240VAC, 20W